LIGHT LABORATORY INC.
8165 E. Kaiser Blvd. Anaheim, CA 92808
p. 714.282.2270
f. 714.676.5558

Photometric Test Report

IES FLOOD REPORT
PHOTOMETRIC FILENAME : L021606602.IES

DESCRIPTIVE INFORMATION (From Photometric File)

IESNA:LM-63-2002
[TEST] L021606602
[TESTLAB] LIGHT LABORATORY, INC.
[ISSUEDATE] 3/3/2016
[MANUFAC] VISTA PROFESSIONAL OUTDOOR LIGHTING
[LUMCAT] 1188-MF-C-CX
[LUMINAIRE] 12"DIA. X 12"H. LED Ingrade, MF Distribution
[BALLASTCAT] ERP ESP040W-0900-42
[LAMPPOSITION] 0,0
[LAMPCAT] N/A
[OTHER] INDICATING THE CANDELA VALUES ARE ABSOLUTE AND
[MORE] SHOULD NOT BE FACTORED FOR DIFFERENT LAMP RATINGS.
[INPUT] 120VAC, 35.42W
[TEST PROCEDURE] IESNA:LM-79-08

Note: Candela values converted from Type-C to Type-B

CHARACTERISTICS

NEMA Type	5 H x 4 V
Maximum Candela	3672
Maximum Candela Angle	-13H -1V
Horizontal Beam Angle (50%)	52.2
Vertical Beam Angle (50%)	45.7
Horizontal Field Angle (10%)	71.5
Vertical Field Angle (10%)	67.5
Lumens Per Lamp	N.A. (absolute)
Total Lamp Lumens	N.A. (absolute)
Beam Lumens	1919
Beam Efficiency	N.A.
Field Lumens	2403
Field Efficiency	N.A.
Spill Lumens	314
Luminaire Lumens	2717
Total Efficiency	N.A.
Total Luminaire Watts	35.42
Ballast Factor	1.00

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AXIAL CANDELA

DEG.	HOR.	DEG.	VERT.
90	0	90	0
85	16	85	16
75	19	75	19
65	29	65	29
55	56	55	56
47.5	109	47.5	109
42.5	183	42.5	183
37.5	296	37.5	296
33	479	33	479
29	1060	29	1060
25.5	1997	25.5	1997
22.5	2560	22.5	2560
19.5	2987	19.5	2987
17	3346	17	3346
15	3543	15	3543
13	3672	13	3672
11	3669	11	3669
9	3609	9	3609
7	3549	7	3549
5	3482	5	3482
3	3422	3	3422
1	3413	1	3413
0	3425	0	3425
-1	3413	-1	3413
-3	3422	-3	3422
-5	3482	-5	3482
-7	3549	-7	3549
-9	3609	-9	3609
-11	3669	-11	3669
-13	3672	-13	3672
-15	3543	-15	3543
-17	3346	-17	3346
-19.5	2987	-19.5	2987
-22.5	2560	-22.5	2560
-25.5	1997	-25.5	1997
-29	1060	-29	1060
-33	479	-33	479
-37.5	296	-37.5	296
-42.5	183	-42.5	183
-47.5	109	-47.5	109
-55	56	-55	56
-65	29	-65	29
-75	19	-75	19
-85	16	-85	16
-90	0	-90	0

ZONAL LUMEN SUMMARY

Zone	%
0-20	46
0-30	79.2
0-40	89.6
0-60	96.8
0-80	99.1
0-90	100
10-90	90
20-40	43.6
20-50	48.8
40-70	8.6
60-80	2.4
70-80	0.9
80-90	0.9
90-110	0
90-120	0
90-130	0
90-150	0
90-180	0
110-180	0
0-180	100

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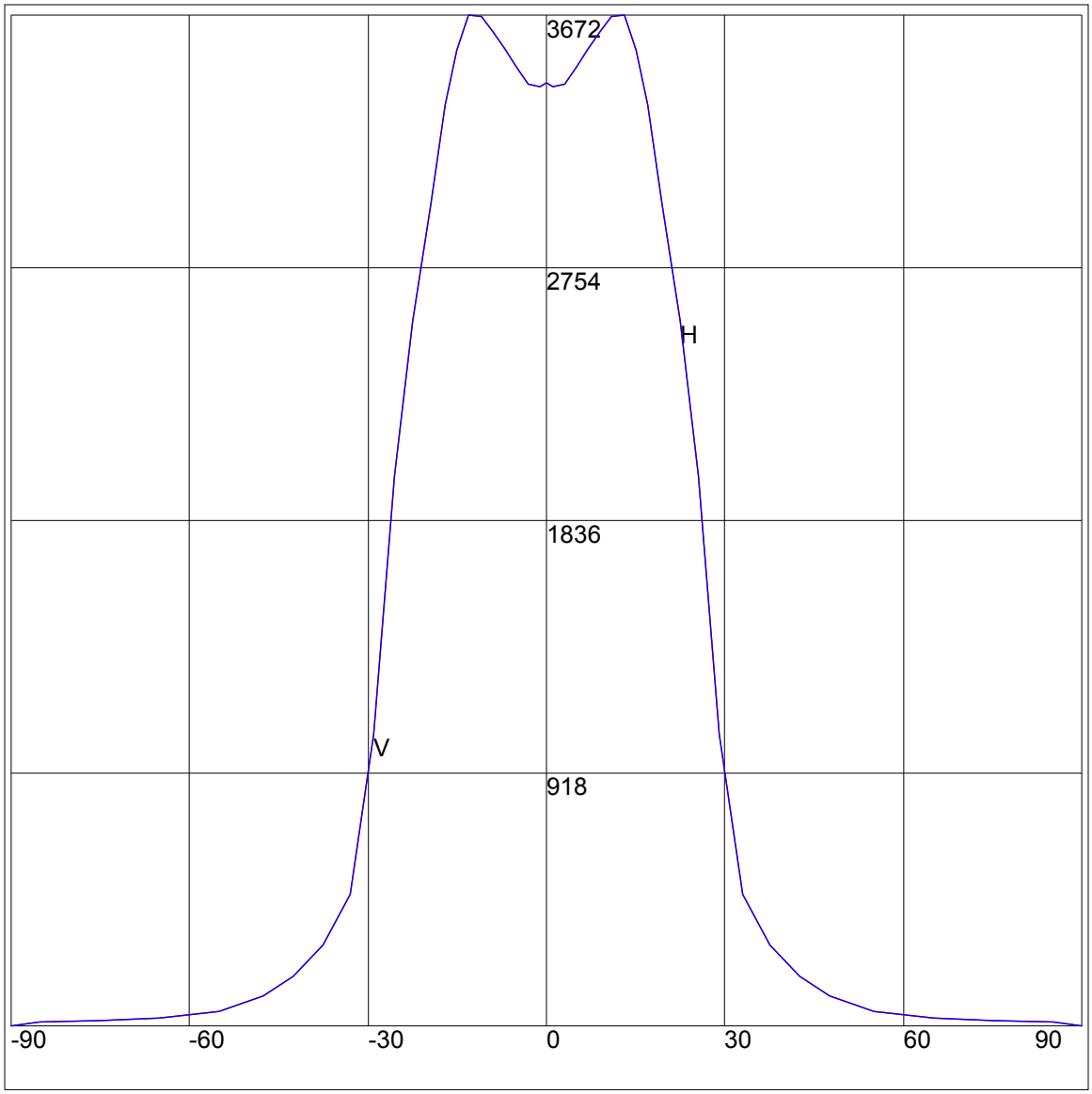
AXIAL CANDELA DISPLAY



Maximum Candela = 3672 Located At Horizontal Angle =-13, Vertical Angle =-1
H - Horizontal Axial Candela
V - Vertical Axial Candela

IES FLOOD REPORT
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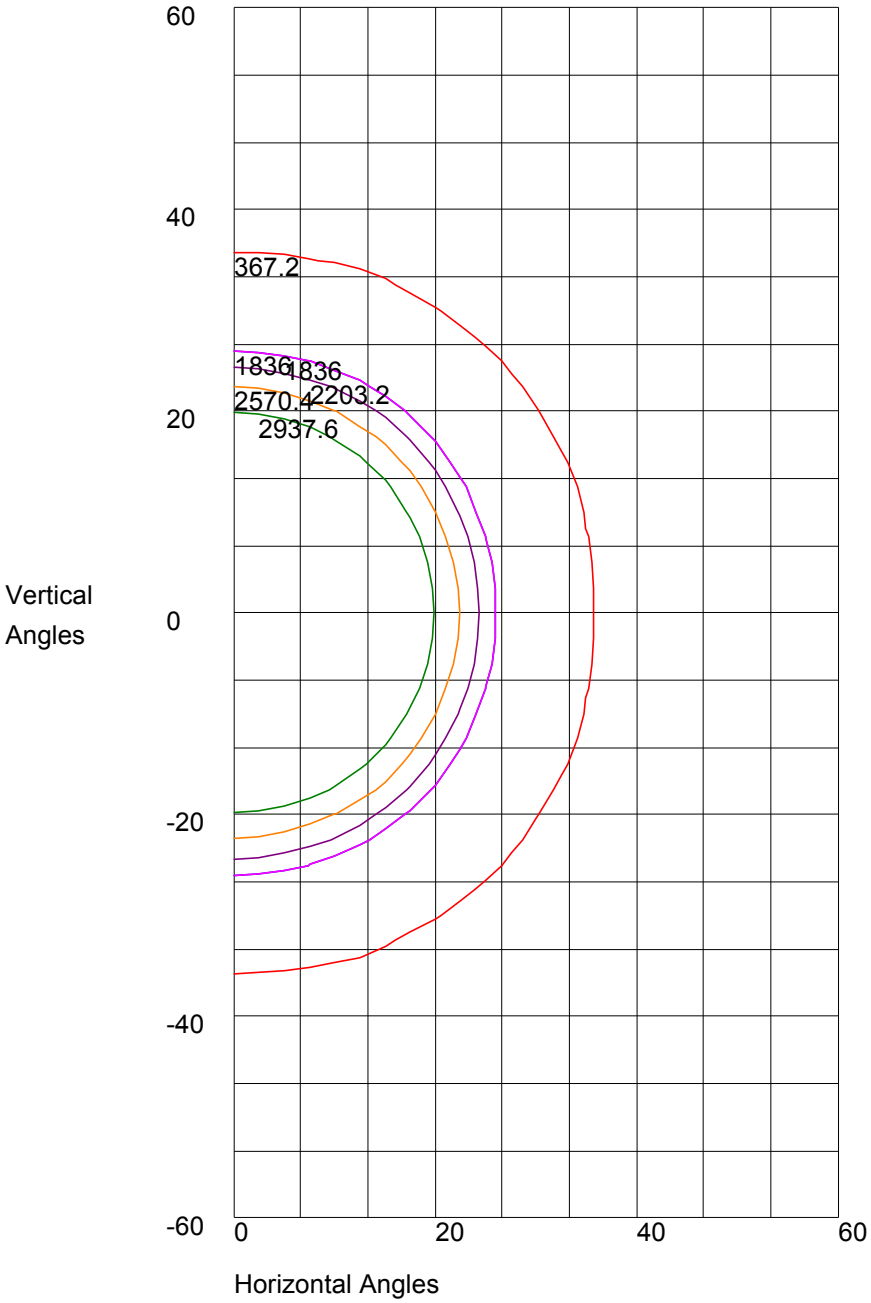
ISOCANDELA CURVES



Maximum Candela = 3672 Located At Horizontal Angle =-13, Vertical Angle =-1
50% Maximum Candela = 1836
10% Maximum Candela = 367.2

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Report No: L021606602
Date: 3/3/2016

NVLAP LAB CODE 200927-0

Report No: **L021606602**

Report Prepared For: Vista Professional Outdoor Lighting
1625 Surveyor Ave., Simi Valley CA 93063

Model Number: **1188-MF-C-CX**

Test: Electrical and Photometric tests

Standards Used: Appropriate part or all test guidelines were used for test performed:
IESNA LM79: 2008 Approved Methods for Electrical and Photometric Measurements of Solid-State Lighting Products
ANSI NEMA ANSLG C78.377: 2008 Specification of the Chromaticity of Solid State Lighting Products
ANSI C82.77:2002: Harmonic Emission Limits-Related Quality Requirements for Lighting Equipment

Description of Sample: Client submitted the sample. Catalog number is 1188-B-MF-30-C-MV-CX-ND. Received in working and undamaged condition. No modifications were necessary.

Testing Condition: Fixture is tested with no special conditions.

Sample Arrival Date: 2/22/16

Date of Tests: 2/29/16 - 2/29/16

Seasoning of Sample: No seasoning was performed in accordance with IESNA LM-79.

Equipment List

Equipment Used	Model No	Stock No	Calibration Due Date
Chroma Programmable AC Source	61604	PS-AC02	--
Yokogawa Digital Power Meter	WT210	MT-EL06-S1	11/18/16
Xitron Power Analyzer	2503AH	MT-EL01	11/30/16
ITECH DC Power Supply	IT6122	PSDC-03-S1	11/17/16
Fluke Digital Thermometer	52k/J	MT-TP02-GC	11/24/16
LLI Type C Goniophotometer System	RMG-C-MKII	CD-LL04-GC	--
LLI 2M Sphere	2MR97	CD-SN03-S2	--
LLI Spectroradiometer	SPR-3000	MT-SC01-S2	Before Use

*All Results in accordance to IESNA LM-79-2008: Approved Method for the Electrical and Photometric Testing of Solid-State Lighting.

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Test Summary	
Manufacturer:	Vista Professional Outdoor Lighting
Model Number:	1188-MF-C-CX
Driver Model Number:	ERP ESP040W-0900-42
Total Lumens:	2717.08
Input Voltage (VAC/60Hz):	120.00
Input Current (Amp):	0.30
Input Power (W):	35.42
Input Power Factor:	0.99
Current ATHD @ 120V(%):	11%
Current ATHD @ 277V(%):	N/A
Efficacy:	77
Color Rendering Index (CRI):	84
Correlated Color Temperature (K):	3019
Chromaticity Coordinate x:	0.4364
Chromaticity Coordinate y:	0.4053
Ambient Temperature (°C):	25.0
Stabilization Time (Hours):	0:30
Total Operating Time (Hours):	1:00
Off State Power(W):	0.00

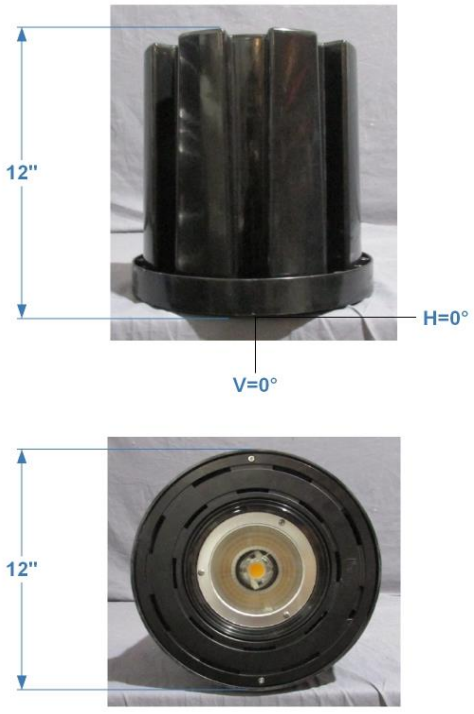

FIG. 1 LUMINAIRE

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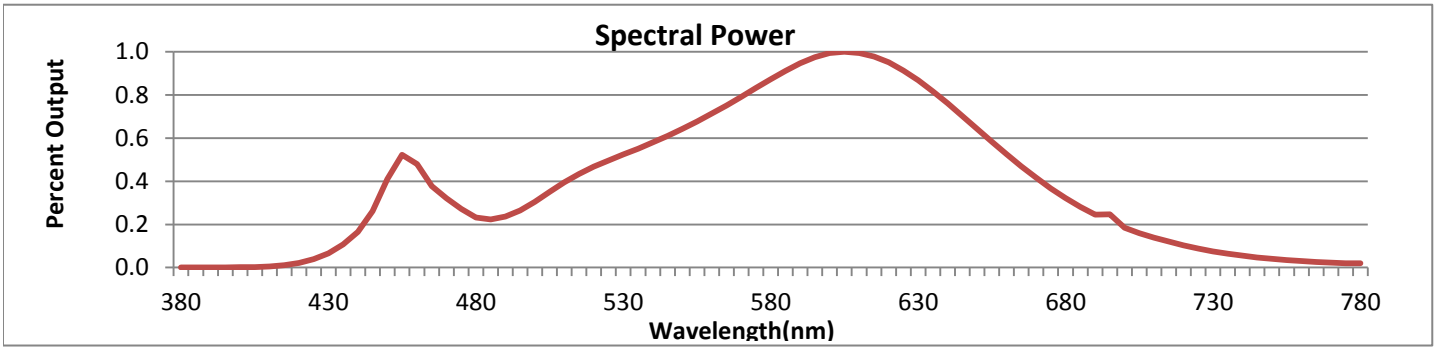


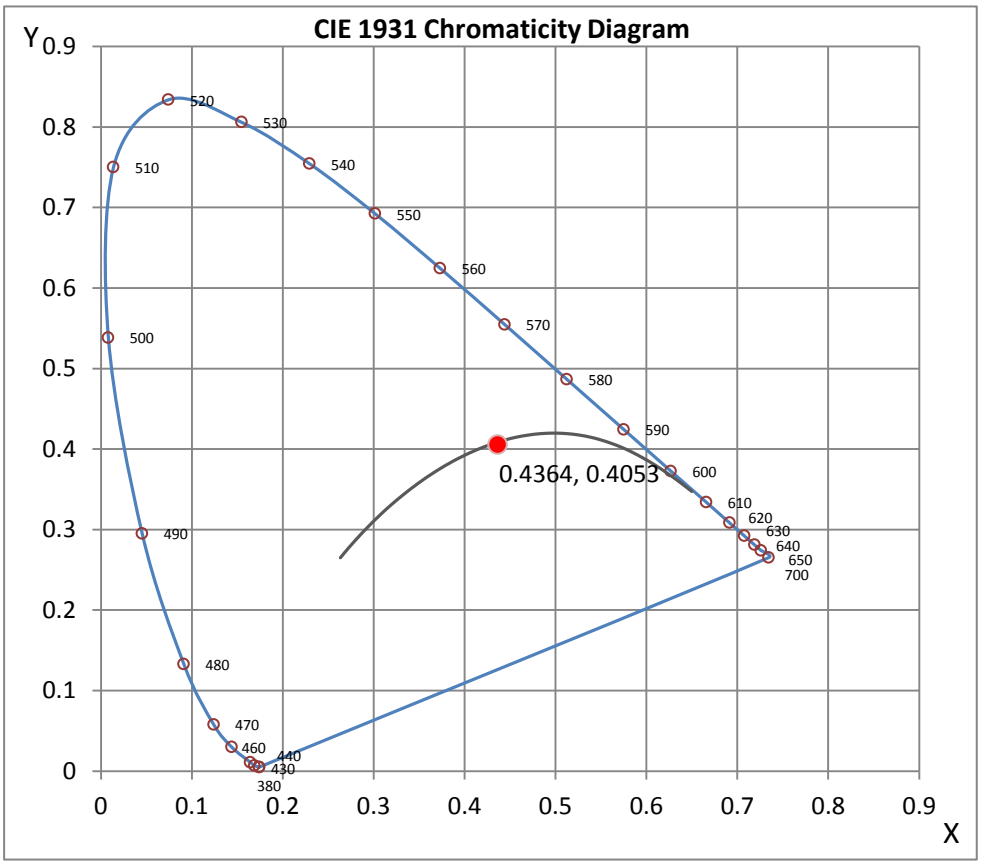
Wavelength	W/m²nm	440	0.0047	510	0.0111	580	0.0246	650	0.0181	720	0.0029
380	0.0000	450	0.0115	520	0.0132	590	0.0267	660	0.0148	730	0.0021
390	0.0000	460	0.0135	530	0.0148	600	0.0280	670	0.0117	740	0.0015
400	0.0000	470	0.0090	540	0.0163	610	0.0280	680	0.0091	750	0.0012
410	0.0001	480	0.0065	550	0.0181	620	0.0268	690	0.0069	760	0.0009
420	0.0006	490	0.0067	560	0.0201	630	0.0244	700	0.0052	770	0.0006
430	0.0019	500	0.0086	570	0.0223	640	0.0214	710	0.0039	780	0.0005

CRI & CCT

x	0.4364
y	0.4053
u'	0.2497
v'	0.5218
CRI	83.90
CCT	3019
Duv	0.00056

R Values

R1	82.61
R2	91.90
R3	96.99
R4	80.97
R5	81.93
R6	89.42
R7	84.51
R8	63.16
R9	17.13
R10	80.39
R11	79.25
R12	69.26
R13	84.85
R14	98.83



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Test Methods

Photometric Measurements - Goniophotometer

A Custom Light Laboratory Type C Rotating Mirror Goniophotometer was used to measure candelas(intensity) at each angle of distribution as defined by IESNA for the appropriate fixture type.

Ambient temperature is set to 25°C and is measured from the center of the fixture, within 1ft from the outside of the fixture. Temperature is maintained at 25°C throughout the testing process and the sample is stabilized for at least 30mins and longer as necessary for the sample to achieve stabilization.

Electrical measurements are measured using the listed equipment.

Spectral Measurements - Integrating Sphere

A Sensing Spectroradiometer SPR-3000, in conjunction with Light Laboratory 2 meter integrating sphere was used to measure chromaticity coordinates, correlated color temperature(CCT) and the color rendering index(CRI) for each sample.

Ambient temperature is set to 25°C and is measured from the center of the fixture, within 1ft from the outside of the fixture. Temperature is maintained at 25°C throughout the testing process and the sample is stabilized for at least 30mins and longer as necessary for the sample to achieve stabilization.

Electrical measurements are measured using the listed equipment.

Disclaimers:

This report must not be used by the customer to claim product certification, approval or endorsement by NVLAP, NIST or any agency of Federal Government.

Report Prepared by : JEFF AHN

Test Report Released by:

Jeff Ahn
Engineering Manager

Test Report Reviewed by:

Steve Kang
Quality Assurance

**Attached are photometric data reports. Total number of pages: 8*

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